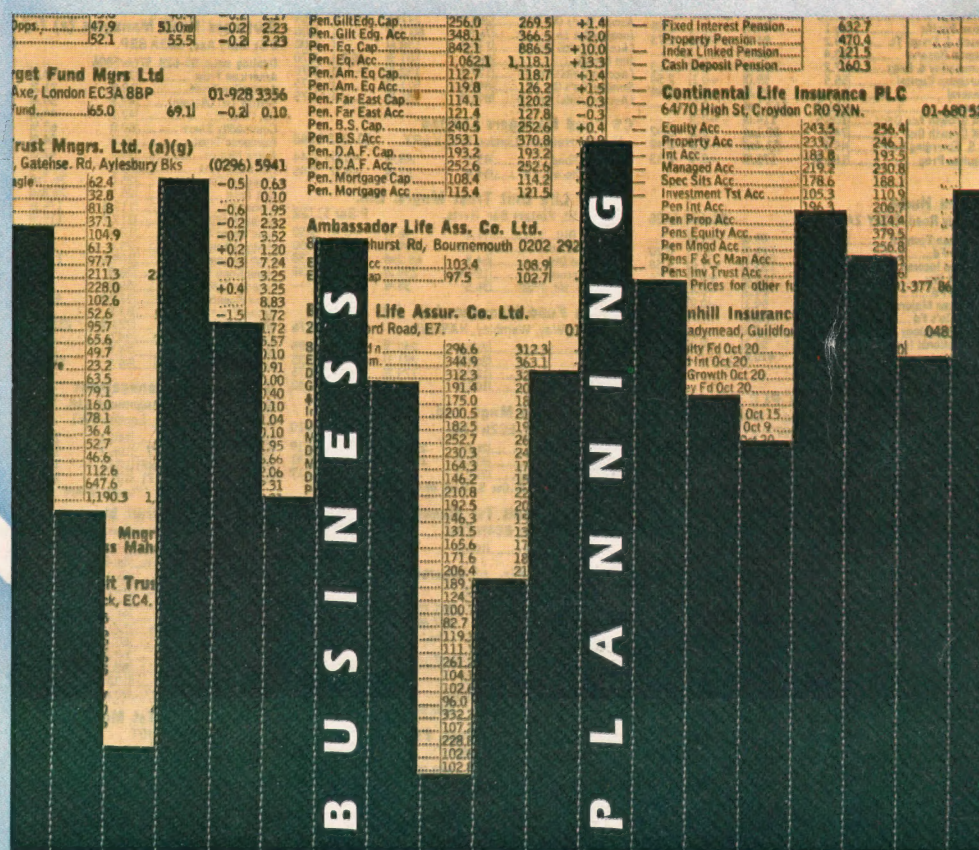


QL

WORLD

THE INDEPENDENT MAGAZINE FOR THE QL OWNER



DATABASE GUIDE
 WRITING SOFTWARE
 FOR BUSINESS NEEDS
 BOOK REVIEWS,
 INSIDE QUANTA, NEWS AND
 MUCH MORE

Q L MONITOR



Microvitec, the product leader in colour displays, have produced a monitor specifically tailored to the requirements of the QL micro, offering not only outstanding graphic capabilities but also excellent 85 column text performance.

The 1451/DQ3 'CUB' display incorporates a super high contrast medium resolution cathode ray tube which offers superb depth of colour and a minimum of screen glare.

Supplied in an attractive sleek black cabinet, the monitor comes complete with cable and carries a full twelve months warranty.

specification:

- 14" screen
- RGB/TTL input
- Resolution (pixels): 653(h) x 585(v)
- Dot pitch: 0.43mm
- Bandwidth: 18MHz
- Antiglare CRT

All Microvitec monitors are designed and manufactured in the British Isles. For the location and telephone number of your nearest CUB dealer, please contact Silicon Express, Microvitec's sole distributor.

SILICON EXPRESS

Silicon Express Limited

Silicon House, Fowke Street, Rothley, Leicestershire LE7 7PJ, U.K. Tel: 0533 374917
Telex 342835 (Prefix all messages SILICON)

• Circle No. 101

QL

WORLD

CONTENTS

NEWS

The reduction in the price of the QL to less than £200 has increased sales dramatically. Silicon Express now has a 512K internal memory upgrade for the QL and offers a one-third height disc drive. Page 5

COMMUNICATIONS

Somewhere, according to Tony Dennis, there is a database to meet everyone's needs. He lists the large number of available services which are on tap for QL users. Page 7

BUSINESS SOFTWARE

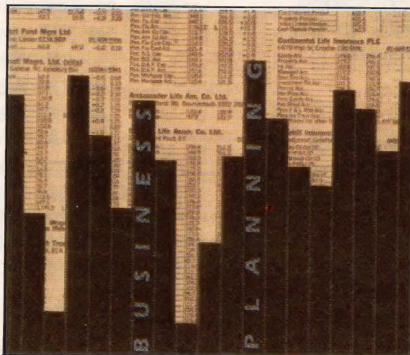
A number of programs to improve the standard of QL computing are examined by our reviewers. Cartridge Doctor, Keydefine, Transact and Qspell are under the microscope. Page 10

PROFILE

Two QL owners who have put their machines to good use for practical business purposes describe the way in which it is possible for first-time programmers to use their talents. Page 14

BUSINESS PLANNING

Two packages from Triptyel Publishing, Entrepreneur and Decision Maker, show how to take the initial steps on the way to business success. Page 19



INSIDE QUANTA

Leon Heller provides information regarding the kind of innovations which are being pioneered by Quanta members to assist towards better computing. Page 26

COMPETITION RESULT

The large number of entrants for our competition to win a Silicon Express disc interface and drive system have had to bow the knee to a reader from Italy. Page 28

SPECIAL OFFER

Rob Sherratt's FCOPY fast-copy routine is now being offered on a Microdrive exchange basis. Page 28

BOOKS

Jason Ball reviews books of assistance to QL users, whether they be advanced or beginners. Page 29

GAMES SOFTWARE

Lands of Havoc, our reviewer says, far surpasses earlier games from Microdeal. It is analysed along with Crazy Painter, Hopper, Cuthbert in Space and QL Bounder. Page 30

November 1985

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with our range of high quality software

Create superb colour pictures on your QL with TALENT's outstanding graphics package. It's supplied on two microdrives — the first holds the master program and a printer dump utility, the second, three demonstration pictures. Backup copies can be made. GRAPHIQL comes with a detailed, clearly-written instruction manual, outlining the program's many facilities.

- Freehand drawing, 8 colours, optional flash
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- Colour list for full colour control
- Re-colour facility
- Magnification with panning
- Mirroring and rotation of blocks of screen
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GRAPHIQL pictures can be put into BASIC or assembler programs with the sample routines provided.

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"WEST will please not only adventure addicts but anyone who ever frowned into a puzzle of any sort" **OL USER**

"The quality of the game is superb — this is the standard the others have to beat" **MICRO ADVENTURER on ZKUL**

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from TALENT.
(please add 50p p. & p.)

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I enclose cheque for Access/Visa

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Graphique ☐ Cartridge Doctor ☐ Cosmos ☐ Expiry Date _____

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Address: _____

P. Code _____ Signature _____

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Tel: 041-552 2128

SOFTWARE FROM SCOTLAND

● **Circle No. 102**

More Silicon offerings



SILICON EXPRESS has announced a 512K internal memory upgrade for the QL. The company offers the upgrade for £150 including VAT. The price

Upgrade

CUMANA intended to show its new OS-9/68000 upgrade system for the QL at Compec '85 in London this month. Cumana promises that the system will be a low-cost, high-performance, real-time operating system incorporating complete multi-tasking capabilities for single or multi-user operation.

includes a three-month warranty on a newly-upgraded QL and Silicon Express promises that the internal memory will do everything the external upgrade does but will not use up your QL expansion slot.

When combined with the company's Insider disc interface, the internal memory upgrade means that you would have a 512K QL set-up for use with discs in the same out-of-desk-top space of a standard 128K QL with no interface.

Another Silicon Express offering is a 720K 3.5in. disc drive, which is only the height of a 50

pence coin. The one-third height drive, available in single or dual packaging, uses the standard 3.5in. double-sided disc, and is fully-transposable with older half-height drives.

A single drive and interface card cost £199 and a dual drive and interface card is £270, with prices including VAT and delivery.

MONQL is now faster

THE POPULAR Hisoft MONQL debugger system is now available in ROM form. The ROM version is available immediately on power-up of the machine and does not need to be loaded-in from Microdrive.

The company claims that in addition to the increased speed afforded by the ROM format, it has added more new features to the system, including on-line help menus available from ROM and new SuperBasic commands

Support for four drives

PCML has unveiled a new memory expansion/disc interface card which adds 256K RAM, a Shugart-standard disc socket and several new QDOS commands to the QL. The company is bundling the interface/RAM expansion with its twin 3.5in. 720K drives and offering the system for £475. The interface supports up to four disc drives.

Enter Daisy Junior

MICRO PERIPHERALS has announced a new letter-quality printer suitable for use with the QL. The company claims its new Daisy Junior daisywheel printer, which prints at 14cps in up to 132 columns, offers a 7K buffer, friction and pin feed and a standard parallel printer interface with serial as an option, and at less than £200 is the lowest-cost of its kind in the U.K.

Reduction boosts sales

THE PRICE reduction for the QL to less than £200 increased sales of the machine dramatically.

Thousands of QLs were reported to have been sold in the weeks immediately following the price reduction. An independent survey of home computer sales by AGB Lektrak shows that after the price reduction the QL captured 5.8 percent of the home computer market for the four-week period ending September 7.

The QL sales figures, however, were dwarfed by those of the Sinclair Spectrum Plus, which captured more than 50 percent of the U.K. home market in those four weeks.

The combined sales of the QL, Spectrum Plus and other

Sinclair products gave the company a much-needed boost of confidence with the news that it now has 56.8 percent of the market and expects to have more as the crucial Christmas buying season approaches.

Tandata gears for Christmas

TANDATA Marketing, the company which rescued the troubled QCOM communications systems for the QL earlier this year, has announced a lower Christmas price for the system.

The company says the price is to bring its system into line with the less than £200 QL. "Following the 50 percent price reduction for the Sinclair QL, we expect rapidly-increasing sales of

the QL to lead to a greater demand for our QL Communications package," says Tandata managing director Roy Pendleton. "We have responded with an extremely attractive three-month special promotion."

The price for the complete Tandata communications system — including auto-dial/auto-answer modem, terminal emulation and Prestel software,

such as JBREAK, which allows a programmer to interrupt a multi-tasking program at any point during its execution.

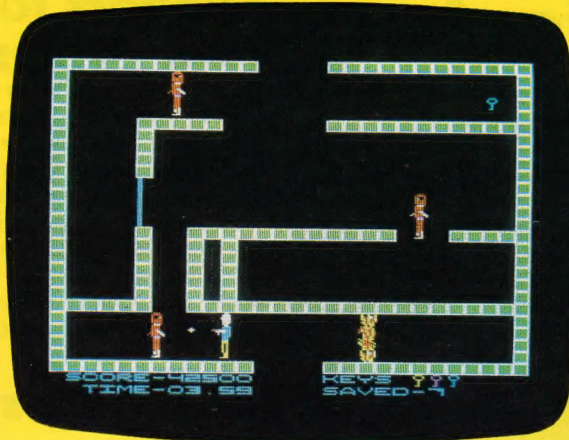
The breakpoint/exception handler apparently also includes code to deal with specialist 68000 exceptions and the disassembler permits users to search for every kind of data, including portions of 68000 assembly language instruction, strings and individual bytes in decimal and hexadecimal.

complete two-way buffered RS232 interface, and both 1,200/75 and 1,200/1,200 baud rate communications — has been reduced from £219.85 including VAT to £199.99.

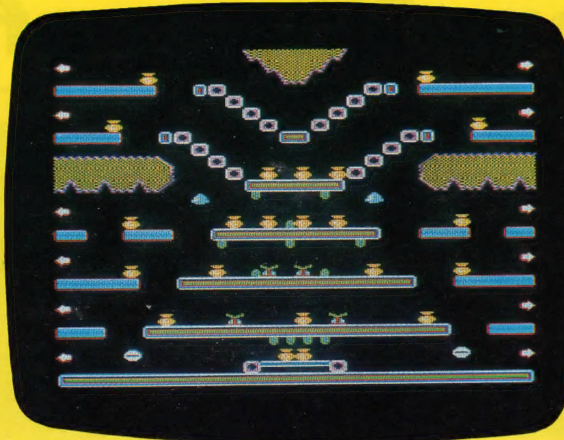
The company has also included a free three-month subscription to Prestel and Micronet, meaning that you can start using the Tandata system almost as soon as you unpack it.

FREE!

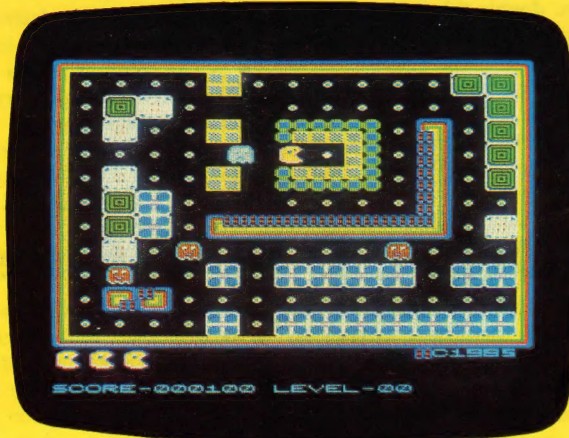
Four free games for every QL owner!



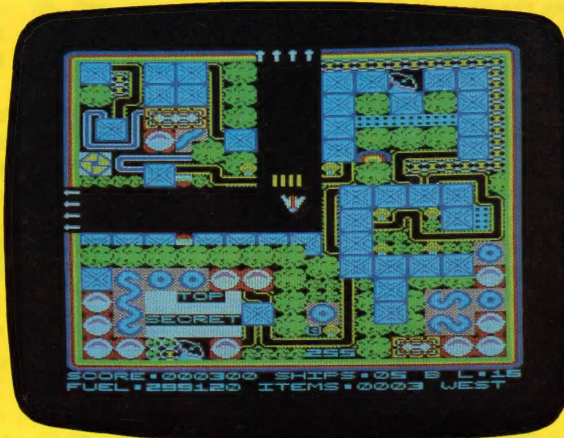
M - COSMIC. Your job is to save your friends, deep-frozen in an enemy space-ship. A mission of cool nerve and firm courage.



M - TREASURE. Deep underground there are bags of gold for you to collect - and man-eating spiders to stop and slay you.



M - CRUNCHER. Stay clear of the jaws that chase you through the maze, avoiding hazards and building points as you go.



M - METROPOLIS. Fast-moving excitement as you steer through screen after screen of incredible dangers and rich rewards.

MEDIC now offer every Sinclair QL owner four brilliant new games - absolutely free! Just send three formatted blank microdrive cartridges for these four best-ever games for the QL, testing your skill, speed and concentration with colourful screens and inventive displays.

All games 100% machine code, with flicker-free multi-colour multi-screen graphics. Three full cartridges of

fast-moving instantly-responsive action.

WHY? Medic offer you this fantastic games value FREE, because they want you to see the quality of Medic software, and as their way of showing their commitment to this superb machine.

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Name _____

Address _____

Telephone Code _____ Number _____

Please complete all details and write clearly.

Databases are under-used

IN AN AGE where speed of information gives a competitive edge, electronic information retrieval has a clear lead. As the recent demise of the Scicon Polis database, extracted from Hansard, has shown, many on-line databases are being under-used. It is ironic that should happen when so many micros could access the service without specialised software or hardware.

In the majority of cases a standard QL, together with the Tandata Q-Con package or an equivalent, can be used. Subscribers can log on at either 300 baud with standard communications software or at 1,200/75 baud with Prestel software. In some cases both systems are supported.

As a rule of thumb, if there is a subject useful to professions, business or scholars, somewhere an on-line database is catering to the need. The most popular subjects for databases are news, exchange rates, share prices, law, medicine and bibliographies. They are found easily. When trying to locate an extremely specialised database, approaching an associated trade association or professional body may well prevent a good deal of searching.

Ironically, readers who have joined Mironet have access to hundreds of other databases, often without realising it. A Mironet subscription includes Prestel validation as well. Hidden on other pages are goldmines of information. Try the following pages for a flavour of what is available—Citiserve on page 881, Lawtel on 251, Meditel on 567 and Booklink on 3531. More information is readily available to Prestel subscribers in the form of a free directory. Contact Directel on 021-455 6585 for a copy.

Most successful

Prestel is the most successful example of a viewdata service. Such databases rely on menus and indices, with the results being displayed one page at a time. On-line databases which can be searched on a given set of parameters also exists. One of the world's biggest belongs to the American company Dialog. Its service aimed specifically at micro users in the U.K. is known as Knowledge Index.

With this kind of service the user inputs a short descriptor of the subject on which information is required. The resulting matches will be displayed in short form. If an interesting item is discovered, it can then be downloaded or read in full on-line. There is no wading through pages looking for the correct index. If desired, a single request for information can be used to search all the relevant databases kept on that system.

The disadvantage with Knowledge Index is that a great deal of its data is American in origin but a good British bibliographical index exists on-line in the form of Blaise from the British Library. Daily news is another popular item and in the field are Fintel, which condenses *The Financial Times* and the Datasolve *World Reporter*.

Most information providers have dozens of databases and they have their own systems and networks, too. It may be worth contacting for their other services such as electronic mail. Those who are searching for a European bias should seek Euronet Diane, which has links with services all over Europe. The main information providers are listed in the accompanying table.

One point to bear in mind when accessing the databases is that most of them offer a hard copy service. Leave a message stating which article is required; the operator will put a copy in the post. That service prevents the task of downloading and printing which can occupy valuable time on the QL.

Remember that on-line databases can prove costly; the annual subscription for one financial service is £6,000. Some not only charge for joining but for time on the computer and the amount of data accessed. Check the cost carefully before signing.

With many services having the host computers based in the U.S., calling direct would prove very costly. Serious users should consider joining the British Telecom Packet SwitchStream service; £50 per year brings a password which gives access to a local node. The node connects to equivalent data networks all over the world. In the States, Tymnet could be used to gain access to the Source or Compuserve.

Tempting

In theory, using these data lines is less expensive than dialling direct but considerable use is needed to take real advantage. Fortunately, the price of a PSS password (NUI) is taken care of when joining a service like Knowledge Index. All the major British, European and North American services can be accessed via PSS, so it is useful for those wanting to access more than one information provider. PSS also deals with incompatibility between modem speeds and standards; thus a Bell modem is not necessary to call a U.S. database.

Many QL users may be tempted to use on-line databases. Then the computing power of the world's mainframes will be at their fingertips—*Tony Dennis*.

continued on next page

COMMUNICATIONS REVIEW

continued from previous page

Information Providers

ADP	01-637 1355
Blaise	01-636 1544
Datastream	01-250 3000
Datasolve	09327-85566
Derwent SDC	0734-866811
Dow Jones	01-353 1515
Eurolex	01-404 4300
Euronet Diane	010-352 488041
Finsbury Data	01-248 9828
Fintel	01-251 9321
Geisco	01-546 1077
GSI	01-242 0747
IP Sharp	01-730 4567
Knowledge Index	0865-730969
Pergamon	01-377 4650

Note: These are voice not data numbers. Euronet will call you back if requested.

Bulletin boards of interest to QL users

CBBS (R) systems

South West. Tel: 0392-53116 Sysop: Boyd Hitchcock.*
Computers Inc. Tel: 0207-543555 Sysop: Trevor Smith.

London West. Tel: 0895-420164 Sysop: John Boulton.
Surrey. Tel: 04862-25174 Sysop: Mike Parker.

TBBS systems

Blandford. Tel: 0258-54494 Sysop: Leo Knaggs.
North Birmingham. Tel: 0827-288810 Sysop: Paul Smith.
Sanctuary (Egham). Tel: 0784-38110 Sysop: Barry Brumitt.
NWBBB (Lancaster). Tel: 0524-822336 Sysop: John O'Connor.
Mailbox-80 Liverpool. Tel: 051-428 8924 Sysop: Peter Tootill, 300 or 1,200 baud.
The London Bulletin Board. Tel: 01-348 9400 Sysop: John Nolan.
Micro Live. Tel: 01-579 2288 Sysop: BBC tv.
Microweb. Tel: 061-456 4157 Sysop: Mike Bibby and Alan McLachlan.
MOBB. Tel: 061-736 8449 Sysop: Ken Farnen.*
PIP. Tel: 0742-667983 Sysop: Quentin Reidford.
London West Technology Centre. Tel: 0895-52685 Sysop: Iain Philips.

Fido boards

Haunting Thunder. Tel: 0752-364059 Sysop: Jim Richardson.
Compulink. Tel: 04867-6535 Sysop: Frank Thornley.

Hugh's Fido. Tel: 0534-39389 Sysop: Hugh Ashborn.

Other systems

Communitree Hope. Tel: 0874-711147 Sysop: Lynn Hurn.
Estelle. Tel: 0279-443511, 300 baud, or 0279-41188, 1,200/75 baud; run by STC Electronic Services, office hours.
Forum-80 Hull. Tel: 0482-497150 Sysop: Fred Brown; Tandy-based, Hours 1700-midnight, except Sunday 1200-midnight.
Distel. Tel: 01-679 1888 run by Display Electronics.
Maptel. Tel: 0702-552941 run by Maplin Electronic Supplies.
Let's talk! Tel: 01-373 6337 Sysop: Pip Coudrey.
Gnome at Home. Tel: 01-888 8894 run by Soft Machinery; Prestel-compatible, eight lines
C-View. Tel: 0702-546373 Sysop: Rochford District Council, Prestel-compatible 1,200/75 baud only.
Stoke Remote CP/M. Tel: 0782-265078 Sysop: Ian Hickman run by Stoke ITeC.
Communitel. Tel: 01-968 7402. Demo board for its viewdata host software, 1,200/75 baud only.
All systems are 300 baud and a 24 hours service unless otherwise stated.
*indicates dual 300 or 1,200/75 baud service.

WDSOFTWARE

FOR THE QL:

WD Utilities (flp2) (£12 on 3.5" disc, £10 on 5.25" disc)
Improved version for the CST/Computamate Q-Disc System. Tested with dual discs and four extra Microdrives, more than 100 files on a disc without overflowing screen and backed-up with single-key commands. Namesake files protected. The EASY way to move your (unprotected) software on and off disc! State 40- or 80-track when ordering.

WD Utilities (3rd ed) (£7.50 on Microdrive)
Up to 60 files for one-screen DIRectory, one-key LOAD, PRINT or COPY (namesakes protected). Prune old files to release space (one key DELETes a file). Easy multiple FOR-MATting for extra reliability. Toolkit to make dated, numbered modules in program development. Control 6 extra Microdrives (add on Spectrum ones)!

RefQL (5th ed) (£7 on mdv or 5.25" disc, £9 on 3.5" disc)
900 useful QL references in ARCHIVE file, with search/print program. Too long to share cartridge with Morse or Utilities but may be added to them on disc for only £5. Cheap to update.

WD Morse Tutor (£6 on mdv or 5.25" disc, £8 on 3.5" disc)
Learn to read Morse Code. From scratch to 18 wpm. Variable speed, pitch & spacing. Random figures, letters, mixed and sentences. Single characters, own message. Feedback on screen or printer. May be added to disc or utilities for only £4 extra.

Prices include postage in Europe (£1 extra elsewhere).
ACCESS welcome.

WDSOFTWARE, Hilltop, St Mary, Jersey.
Tel: (0534) 81392



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20Mb with one Floppy ...	£1650
20Mb with two Floppies.	£1800
40Mb system only	£2700
40Mb with one Floppy ...	£2850
40Mb with two Floppies.	£3000

CST are pleased to announce yet another first for the Sinclair QL.

A range of 10, 20 and 40Mb Winchester systems with optionally one or two 3.5 inch 720K Floppy disc drives and high speed tape streaming output, in one enclosure.

These systems are designed for the professional office environment and care has been taken to avoid unsightly cable connections.

With the exception of the 10Mb unit without floppy, the QL power supply is built in and there are 3 mains outlets at the back for monitor, printer, graph plotter etc . . .

Winchesters can store huge amounts of valuable information; for example a 10Mb unit can store as much as approximately 100 microdrives. Good back up is essential when relying on one storage facility. Hence CSI has developed a simple yet sophisticated system to provide easy backup of data on floppy disc, high speed streaming tape or microdrive.

The CST Winchester systems were developed with close co-operation from Sinclair Research Ltd and are fully compatible with the QL, QDOS, Psion application programs and all planned Sinclair peripherals and software.

For applications requiring more than one interface, the CST Q + 4 Expansion systems can be used (as illustrated above), to connect up to four interfaces to the QL.

If you have any questions as to which system would be most suitable for your application, please do not hesitate to contact us.

Orders To

**24 Green Street
Stevenage
Hertfordshire SG1 3DS**

Telephone (0438) 352150



Cambridge Systems Technology

Cartridge Doctor is single comp

Four offerings which provide the means to use your QL for time-saving operations are analysed by our reviewers, Cartridge Doctor, Transact, Keydefine and Qspell can provide you with varying kinds of valuable assistance.

THE TALENT Software *Cartridge Doctor* is not just a selection of utilities like the Disc Doctors available for other computers. It is a single and comprehensive utility for retrieving information from corrupt Microdrive cartridges.

The occasional unreliability of the cartridges is a recognised hazard and most software retailers encourage the creation and use of back-up copies of their products. Often, despite meticulous copying procedures, valuable data and programs are lost to faulty cartridges, leaving only the teeth-grating message 'bad or changed medium.'

The £14.95 *Cartridge Doctor* produces an answer to the problem by permitting the retrieval of all, or at least most, uncorrupted data from a cartridge and the modification of each corrupted block of data. The program uses artificially intelligent techniques and incorporates a rule-based expert system to make decisions and remove much of the work associated normally with data recovery.

The program is visually straightforward and despite the complexity of some of its procedures, it can be used easily. The 40-page manual gives invaluable insight into the workings of cartridges and the method by which they store information.

Having explained how the main retrieval

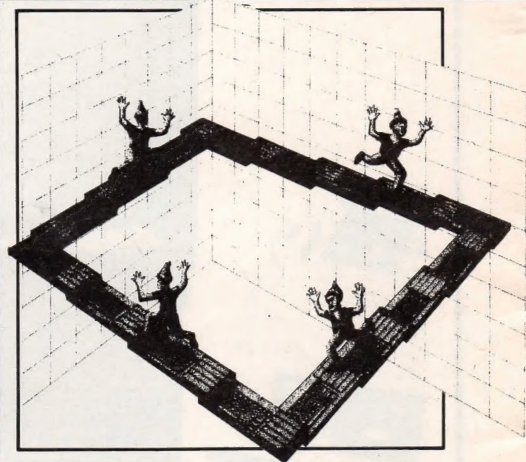
program is controlled, the manual describes the complex methods of retrieving badly-corrupted cartridges — beyond the needs and skills of most users. The program also incorporates an impatience routine, whereby questions appear with a suggested answer, beeping for 10 seconds before the suggested answer is used and the program continues. You must still be present to confirm the more important answers.

Autocloning is the main routine, checking each file on the damaged cartridge and copying the good ones to a new cartridge. Any files with bad sections will be identified and a second File Patch routine is implemented to correct each corrupt bit of data. That is feasible if you know the correct format of the data — if it is a text file or a program of which you have a listing — but a commercial program cannot be salvaged in that way, since part of the program will remain corrupted.

Cartridges suffering severe corruption may be salvaged using the third option, which takes sections from one file and writes them on to another file. That permits you to sort out blocks which have become disordered, putting back the meaningful blocks into their correct order.

The program is well-organised and straightforward to use but it requires a degree of competence to rectify badly-damaged cartridges. The doctor cannot work miracles, despite the brilliance of its programming; it can only lead you to the problems and provide a routine for you to deal with them. We are all susceptible to faulty cartridges and the Talent remedy deserves careful consideration, particularly if you rely on information stored on cartridge. — *Jason Ball.*

● *Cartridge Doctor is available from Talent Computer Systems, Curran Building, 101 St James Road, Glasgow G4 0NS. Tel: 041-552 2128.*



Transact is easy route

FOOLISHLY having volunteered to do the book-keeping for a small company more than a year ago, I am always looking for any computer program designed to lend a helping hand in balancing my figures. Dialog Software has recently released *Transact*, a book-keeping system dedicated to assisting the recording of a small company's accounts.

Transact also offers a separate analysis for VAT calculations, a particular handicap of mine and millions of other book-keepers. The program admittedly is not for the book-keeping neophyte but initially seemed to be the answer to all my needs.

The *Transact* book-keeping system can serve either alongside your present company books or eventually become an alternative to the laborious pen-and-paper method. The program maintains a company's day books

Keydefine is powerful

KEYDEFINE is a powerful function key utility, based on the Spectrum version of the same name. It allows up to 41 keys to be re-programmed to each hold Basic commands or text. The value of this £9.95 utility is in its ability to multi-task along with other programs, in particular the Quill word processor, permitting names and addresses, standard paragraphs or command sequences for certain formats to be written with a single keystroke.

Built as a collection of routines, Keyde-

fine is written in machine code and multi-tasks with other programs through the 'exec' command. Each key can hold 2K of any user-written Basic commands, programs — including control codes — text or machine code.

The main menu presents six alternatives, the first and foremost to make a back-up copy. There are four main routines, three containing keys which have already been defined and the fourth allowing you to define all the keys.

The second option sets up the keys for basic operations and commands used frequently in programming. Those functions are accessed using Caps Lock as a shift key

and pressing the appropriate letter, number or function key assigned to it. It is a very useful routine for the programmer; commands can be executed directly, placed in a program by typing a line number before they are called, or viewed by typing REM before you call them. Other programs may be run and the NEW command used without affecting the function keys.

The third option, Quill Key, is designed to work with the Quill word processor. The instructions show clearly how to modify the Quill boot program so that Quill Key is always present. You can then recall text or addresses with a single keystroke. On the sample cartridge the *QL World* name, address and telephone number could all be

Comprehensive utility

— purchases day book, sales day book — and a self-balancing nominal ledger. Period-end adjustments to entries are also included but the program features do not include support for sales and purchase ledgers at present.

The accounts headings form the backbone of the program. You are allowed 10 separate accounts headings, each of which can be divided into 10 individual sub-sections. One account heading is already used by the program as a control account, relating to banks, cash, debtors, creditors and VAT. That account is used to maintain balances which oversee all your other accounts and cannot be changed.

Matters will be made clearer by describing how Transact works. You begin the program by entering the date; it is important that book-keepers note that Transact works by day input rather than standard individual transaction input. The program will then go into the accounts structure and ask you either to create a new file or load a previous file. If you are creating a new file, you will have to enter a new 10-character file name.

Control headings

The screen will then display the accounts set-up, consisting of the control headings for section one which, as mentioned previously, cannot be modified. You then press enter to continue creating a new account.

A section number for a new account will be assigned, then divided into up to 10 sub-sections, with automatic sub-section numbers. After you type-in your account headings, the program will ask if you want to accept the headings and if there will be any more accounts to be created. If you do not need 10 subsections, use the up cursor in the next empty title creation space and press enter to go to either the next heading or return to the main menu.

Once you have divided your accounts into

typed into the top of a Quill document with one keypress.

Option four contains high-level commands for the advanced programmer and is designed to multi-task with an assembler/editor package.

The most important option is the Define routine which allows you to define your own set of keys, or alter any of the keys in the previously-mentioned routines. That is essential for Quill — it is used to define the text implemented into Quill Key. A series of windows are used to show which key is being defined, the commands programmed into it, and details of memory used.

The final option allows you to change the area, colour and widths of the windows used

headings and sub-sections, the program will return to the Transact menu to enable you to process your transactions, use the accounts file handler, re-start the program, end or use the utility procedures — the nuts and bolts of the program.

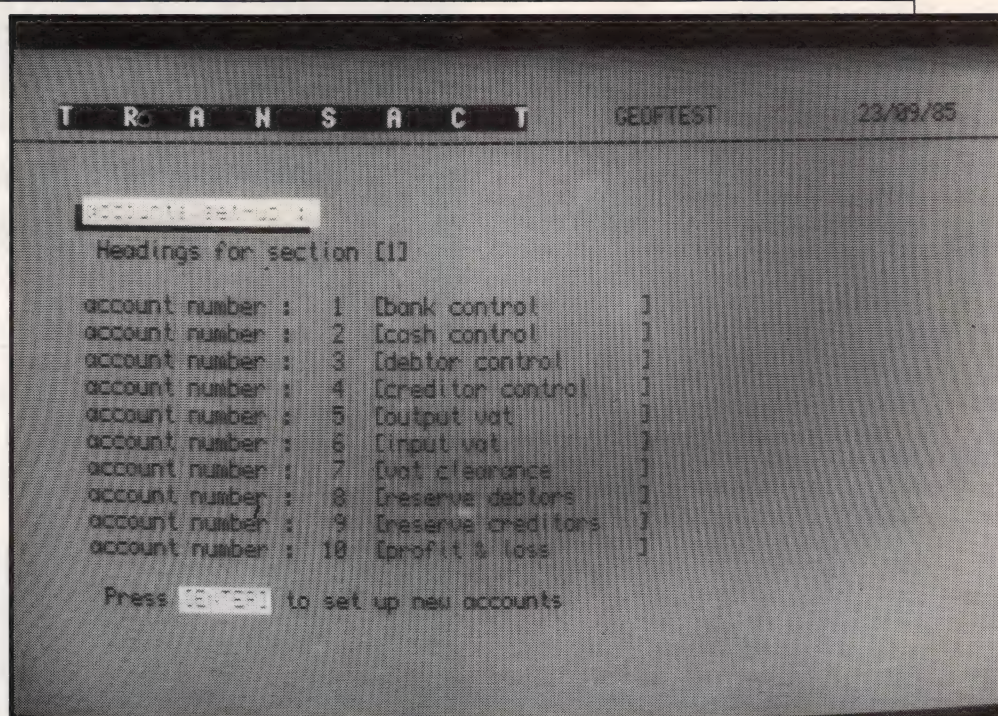
To process your data, press the letter 'p' and the screen will then show your account name, the date and a choice of six transactions options, ranging from bank receipts and payments to VAT automatic calculation. One of your first actions should be to set up the VAT autocalc for the current rate of 15 percent, if your books normally deal with that tax. Otherwise the program is set at the zero rating.

Another choice in the process transactions

by the Define routine. The program has obvious advantages, since it can provide any commands with one keystroke, and an automatic directory is a real luxury.

You have to put in a fair degree of work to program the keys and that is impracticable when used with Quill for anything more than your address. Second, with 41 keys from which to choose you need a permanent table of each key function. It is a time-saver, particularly once some of the keys you choose are memorised, and is worthwhile for anyone who uses a keyboard for more than running programs. — *Jason Ball.*

● *Keydefine for the QL, Psientific Software, 37 Cottesmore Road, Hessele, North Humberside HU13 9JQ. Tel: 0482 649187.*



menu is to enter bank receipts and payments. The transaction will then be assigned a number and you will be given a choice of processing a payment or receipt. The date, payment or receipt name, an eight-number folio number — i.e., invoice number — bank control amount — i.e., gross amount — input or output VAT — depending on transaction — account number — if you are not sure you can check on a handy pull-down menu listing your transactions; cash control amount — i.e., nett amount — accept analysis, details and then, finally, any further transactions.

There are two points to note about the process transactions menu. First, you will not be able to leave that screen until your figures balance correctly — i.e., your gross amount equates your VAT input or output, if applicable, plus your nett. The program will keep asking you for further cash control amounts until it balances. Also, one of the advantages of the program is that along with VAT autocalc, the nett amount can also be calculated automatically by pressing @.

After you have decided finally what your headings will be and have input information into those headings, it might be satisfactory to look at those figures in various ways to make some sense from them. The Transact analysis features work in several ways through the transaction file handler.

Transaction file handler offers both analysis and updating of your accounts. You can

continued on next page

continued from previous page

view your accounts by the transaction number or you can summarise an account which will show gross output/input VAT and nett figures. On the other hand, you could also itemise your accounts which would list each item in that particular account.

Your analysis can be viewed in two ways, screen or printout. Especially for the printer are a transaction report — a listing by transaction number, date, name, folio number, total, VAT and nett — a control accounts report and postings details — information transferred from your accounts to the ledger.

The transaction file handler also includes updates for your balances. Be warned — print-out your transactions before you update because all details will be wiped out after the updating. To save your information, insert a Transact-formatted Microdrive cartridge in Microdrive two to save.

Quick to respond

Finally, you also have a choice to re-start the program, and a selection of utility procedures which include directory options, RS232C printer specifications and format cartridge command for Transact files. The end command is interesting because your transactions will be lost if you have not updated your accounts file and, therefore, Transact will ask you to confirm your actions.

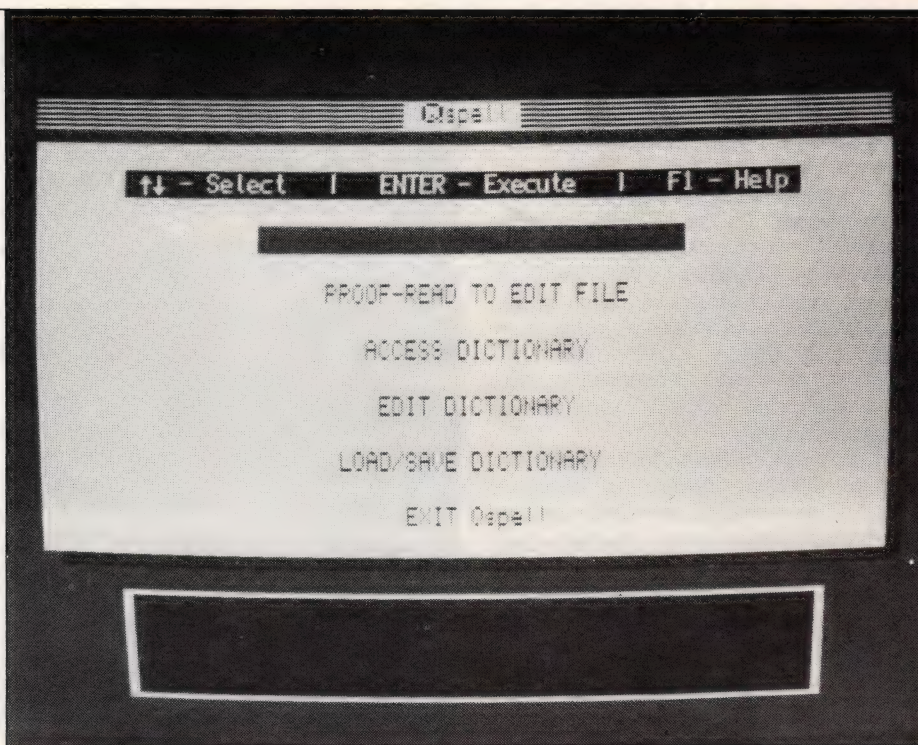
It should also be noted that the program is written in Basic rather than in machine code. The disadvantage becomes apparent if inadvertently you hit break — the control key and space bar simultaneously — and you will, if your fingers slip using the control and up cursor key to go to your next account heading. You jump out of the program to Basic and, believe me, you do not want to be there.

On the plus side, once you have learned the program, it is quick to respond and fairly comprehensive.

Dialog also offers software support, though not through the telephone number printed in my manual. The number to try is 01-787 7871. My queries regarding VAT were dealt with quickly and efficiently.

So is the Transact book-keeping system worth the £34.95 price? It will not solve all your book-keeping headaches — only throwing the books out of the window would do that — but it makes the life of the unfortunate person lumbered with a small company's book-keeping much easier. I only wish they had not written it in Basic. — *Yvette Stachowiak.*

● *Transact book-keeping system, Dialog Software, 20 New Row, London WC2N 4LA.*



Qspell is crossword aid

QSPELL is a £19.95 spelling checker/proof-reader for the QL Quill word processor, versions one and two. Containing an immense dictionary of 25,000 words, it resides entirely in memory, so the system is as fast as possible.

The program acts as a multi-tasking routine alongside Quill, which is modified to load Qspell files. Once modified, Qspell remains a permanent part of Quill and subsequently is used to edit Qspell files.

Complete with a 12-page instruction manual, Qspell contains many unusual functions which are added subsequently to Quill. In that way a spell-checked document can be corrected using Quill and the dictionary may also be accessed directly to solve crossword puzzles and anagrams.

Setting-up Qspell is a time-consuming task, although the software makes it as simple as possible. Subsequently Qspell is used to check Quill files and an amended file is saved on the Quill data cartridge. The new version of Quill, containing Qspell routines, is then loaded and used to amend mistakes which are highlighted.

When checking a file using Qspell, there are several choices available, selected with ease from the main menu. At any point, F1 may be pressed to give help on the selected option. The first option is to proof-read to screen or printer. That may be done without supervision, with unknown words highlight-

ed, or more usually with supervision. When supervised, Qspell allows the marking of words, for correction later, or their addition to the dictionary. Alternatively names or similar words may be ignored. Unfortunately, to keep in new words the Save Dictionary option must be used.

If there are mistakes the second option to proof-read to an edit file should be used. That creates a file with all the mistakes highlighted on it, so they may be edited using the special version of Quill.

Perhaps the most unusual feature of Qspell is the Access Dictionary option. That permits you to view words matching one you type-in, for crossword solving. For instance, if you have three letters of a seven-letter word, the computer will produce all the words which could fit the part — *The Times* crossword was completed in five minutes. You can also solve anagrams and word puzzles, using the special options provided.

Much effort has gone into Qspell to make it as simple to use as possible but it is still a laborious process to check the spelling of any Quill files. The program is a valuable asset to anyone writing frequently with Quill and is also an excellent choice for anyone interested in solving crosswords and similar puzzles. — *Jason Ball*

● *Qspell, Eidersoft, The Office, Hall Farm, North Ockendon, Upminster, Essex RM14 3QH.*

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Treading the middle path

DESPITE the increasingly high profile of computer technology, a good proportion of small businesses still have comparatively little experience of microcomputing, let alone of developing their own programs. Yet John Foster, who runs his own insurance broking firm at Wimborne, Dorset, has proved that even a complete beginner can very quickly understand some fairly complex programming.

Foster, who decided to buy a small business computer last year, took delivery of his Sinclair QL in July, 1984. His choice was based, he says, on a number of factors.

"Certainly the price was very attractive," he explains, "but I was also impressed by the launch literature, which indicated that the QL was the ideal business tool to help a complete novice like myself to begin computerisation. That impression proved to be absolutely correct."

Trained as an electronics engineer, Foster has been interested in computing for some time and had considered buying a micro as long ago as 1977, when he decided to re-organise the company's accounting systems. Despite investigating both manual and computer systems available then, he could find nothing to suit his needs and designed his own manual system, with a view, he explains, to the way in which microcomputing might develop, allowing easy transfer from the manual system to a micro.

By 1984 he had obviously decided that the QL would suit his needs. Having previously done no programming, he began to teach himself from the QL manual and by September had developed the first version of a series of programs covering both accounts and standard letter-writing functions.

Wrote his own

While teaching himself to program, Foster had used both Quill and Archive but, finding the former unsatisfactory, decided to write his own letters program on Archive.

That software permits the user to pick up client information from the database management system and include it in any of a variety of standard letters, thus dispensing with the need to merge information from Archive with a full word processing program such as Quill.

Foster based most of his programming on the database system and says: "I did most of my learning on Archive and believe I can now get it to do almost anything I want it to do."

Previously he had been in touch with the software house Psion, explaining that he wanted to develop programs to handle standard letters, perform calculations on life

insurance and, later, deal with the firm's accounting procedures, and seeking advice from Dr Irwin Joffe, head of the Psion software support group.

When he had completed the first version of his programs, he showed them to Joffe, who was sufficiently impressed to say that although they could benefit from some improvements, they might well be worth marketing to other small businesses.

Since that time the programs have undergone a number of amendments and Foster is quick to point to the amount of help he received from Joffe. He says: "Whenever I was absolutely stuck, I telephoned Dr Joffe and he would advise me on the best course of action."

The programs Foster has written were never intended to produce a fully-automated office. Essentially he is running his office on

First-time programmers who wrote the software to suit their business needs.

similar lines to those used before his QL days; client information is still held on a card system and the accounting information is held on printout. What he planned, and has achieved, is the automation of all update information.

His program permits him to enter details of transactions on to his records on a daily basis, covering both client information and the result of transactions on his accounting system, including error-checking, coding of records and printing-out bank paying-in slips.

He has successfully trodden a middle path by automating a high proportion of the daily manual functions of his business and adds that he sees no point in using the QL to store client information — "It is simply too slow," he says. There is little doubt, though, that Foster is a QL fan. He says: "I have found it to be an increasingly useful business tool and can certainly vouch for its usefulness when learning to program."

The final version of Foster's software has entailed some additions to the original hardware. He now has two QLs, each with a Simplex 256K RAM pack — one running with a Canon dot matrix printer, the other with a Brother daisywheel for the higher-quality printout, such as letters. Although the programs obviously are tailored to the business of insurance broking, Foster is certain that they could easily be used in a variety of other small businesses, an opinion he shares with Joffe.

Joffe is a name which is heard often when

talking to business users of the QL. Another businessman who has developed a program on the micro to suit his particular needs describes Joffe as "exceptionally helpful".

Bob Baxter has been running his courier company in London's Pimlico since early 1983 and recently has been putting the finishing touches to a program which allows him to calculate distances accurately and hence give his clients reliable and consistent quotations for any particular job.

The majority of Baxter's work to date has been sub-contracted from TNT, for which he runs a high proportion of despatch motor-cycles and vans round London. While continuing his relationship with TNT, he is also setting-up an independent courier company, Code 3, and plans to continue using his newly-developed system to full effect.

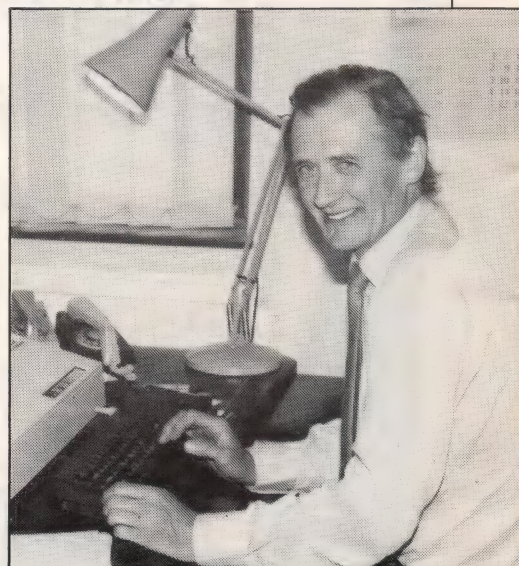
Baxter bought his QL in October, 1984, planning to use both the bundled spreadsheet and database management software. He found, however, that the Archive database was too small to meet his needs, so he began, with Joffe's help, to develop his own programs, having also invested in a Compu-mate disc drive.

Baxter, a navigator by profession, explains that the basis for working-out and quoting all despatch work is only a matter of calculating distances from A to B. To be accurate, however, those calculations are exceptionally time-consuming. So Baxter contacted Psion with his idea for a program which, based on spherical trigonometry, produced accurate distances from A to B anywhere in the U.K. Joffe comments:

"The formula is not particularly complicated but what Baxter spotted, of course,

continued on next page

John Foster.



PROFILE

continued from previous page

was the need for the application. It is precisely the programmer's imagination which is a significant factor in the development of good software."

The formula in the program basically uses the longitude and latitude of any particular location, gleaned from a variety of sources, including Ordnance Survey maps and the now-out-of-print *Times Index-Gazetteer of the World* to pinpoint the exact distance from any other location in the U.K. The user simply enters the name of the pick-up location — which might be the name of a town, village or a London postal district — followed by the name of the drop location and the system will give the exact mileage as the crow flies, then that same mileage plus 18 percent, which is calculated automatically to account for twists and bends in the road.

Obviously one of the time-consuming elements of the program is building the database-but once the longitude and latitude of any particular place has been fed in, distance calculations from or to that location are



Bob Baxter.

available immediately. Baxter has been using the system in his business since the end of last year. He says: "When quoting for a job in my business, consistency is extremely important. Courier companies which make arbitrary quotation, based loosely on estimated mileage, may be faced with the problem of customers querying different costs for the same journey on, say, two or three separate occasions."

Baxter also uses the system to pay his drivers, their wages being calculated on the system, based on the recorded mileage. Baxter

claims that the drivers are very satisfied with the arrangement and adds that it takes a good deal of drudgery out of his work.

The program is expandable, allowing the job number, mileage and cost to be included on the printout. The cost, of course, depends on the type of vehicle used, as well as the distance covered, and Baxter has a printed rate for each vehicle. Hence documentation is produced both for accurate quotation and as a record for any future queries.

Baxter sees the program as a useful application for any company, such as minicab firms, which have to quote on distances. He recognises that effort is still required to build the database further, but points to the comparatively simple task of feeding-in information from an Ordnance Survey map, adding that whoever markets the program might also set up a help line to supply such information.

No doubt businessmen like Baxter and Foster will continue to prove the usefulness of small business micros like the QL and in the meantime add to the growing stock of innovative business software on the market.

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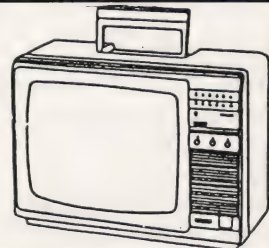
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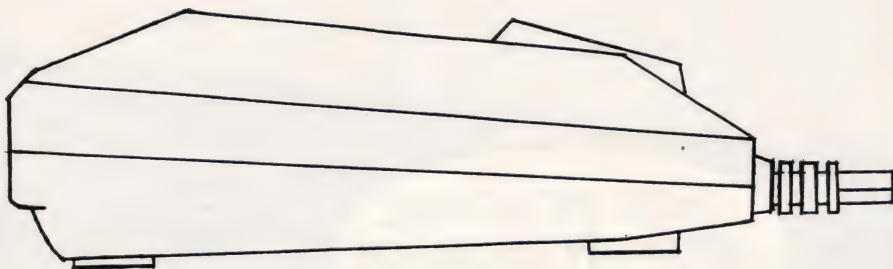
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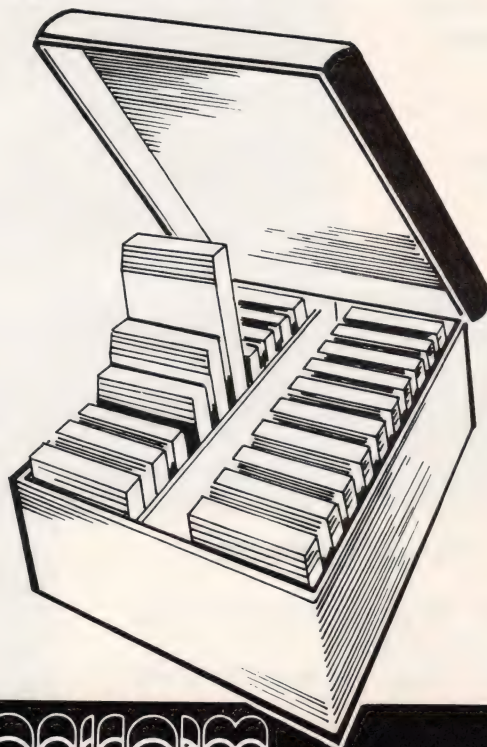
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Transform

Using the QL as worthwhile tool

HOME COMPUTERS are often accused of being simply trumped-up games machines, with aspirations far beyond their capabilities. Sinclair Research was quick to recognise the fact and went to great lengths to make sure the QL was taken seriously by selling it with four standard business applications — the now-familiar QL Quill, Abacus, Archive and Easel from Psion.

The packages set the tone for the majority of QL business software which has followed — solid, useful and professional-looking packages to rival those of the PC.

Triptych Publishing has taken the business-like approach a step further by producing a series of original business courses, using the QL as a teaching aid/business tool.

To give Triptych its due, the software series was not developed originally for the QL. Founded in the summer of 1983, Triptych introduced its first Brainpower range of six practical business applications in September, 1984 for the BBC micro and the Spectrum. Commissions were arranged to convert the series for several other home computers, most recently the QL, for which three of the Brainpower series are available.

Taking advantage of the great power of the QL, Triptych has been able to develop considerably-enhanced versions of its earlier programs, the most successful of which, *QL-Entrepreneur*, became winner of the *Personal Computer World* Home Software Award earlier this year. Described by Sir Alastair Burnet as "the product which brought business decisions to home computing", *Entrepreneur* did not top the headlines on News at Ten but was successful with the computer press.

Teaches basic skills

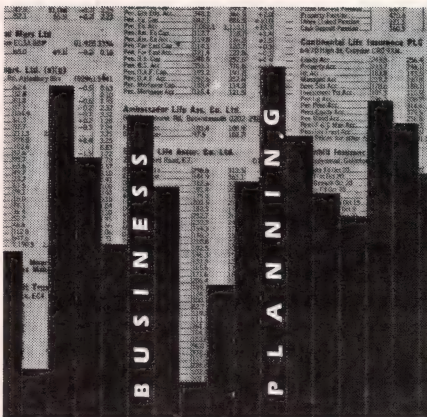
The package is in the standard Sinclair black plastic box, with a 126-page manual and four Microdrive cartridges. *Entrepreneur* is designed to teach the prospective businessman basic business skills and techniques to develop an understanding of "the fundamental principles of business and the mechanics of a business plan."

Armed with that knowledge and the applications program you are well-equipped to develop a sound business plan, assuming your business is viable, and take first steps towards starting a new venture.

The manual works in close relation with the tutorial programs, explaining the basic rules for business ventures before dealing with each topic in turn.

Step-by-step examples and exercises are demonstrated on the

Sinclair Research went to great lengths to make sure the QL was taken seriously as a business machine. Now Triptych Publishing has taken the approach a stage further with a series of original business courses. QL Entrepreneur provides a way to develop a sound business plan.



QL to develop your understanding further and keep the tutorial as interesting as possible.

The first questions are really daunting unless you have an excellent business idea in

mind but even if your scheme does not fit the suggested requirements, a sound knowledge of financial analysis is a valuable asset.

Having taken business studies courses, and as a prospective millionaire, I found much valuable information explained clearly in the manual — in greater detail than some specific books on the subject.

To explain the principles, a cautionary business tale is given. Explanatory diagrams are drawn using the QL and the comprehensive appendices show sample business data drawn on appropriate charts and forms.

Topics covered in detail include balance sheets, costs, cash, VAT and tax on profits, demonstrating each of the ideas with diagrams and questions in the teaching programs.

Helpful suggestions

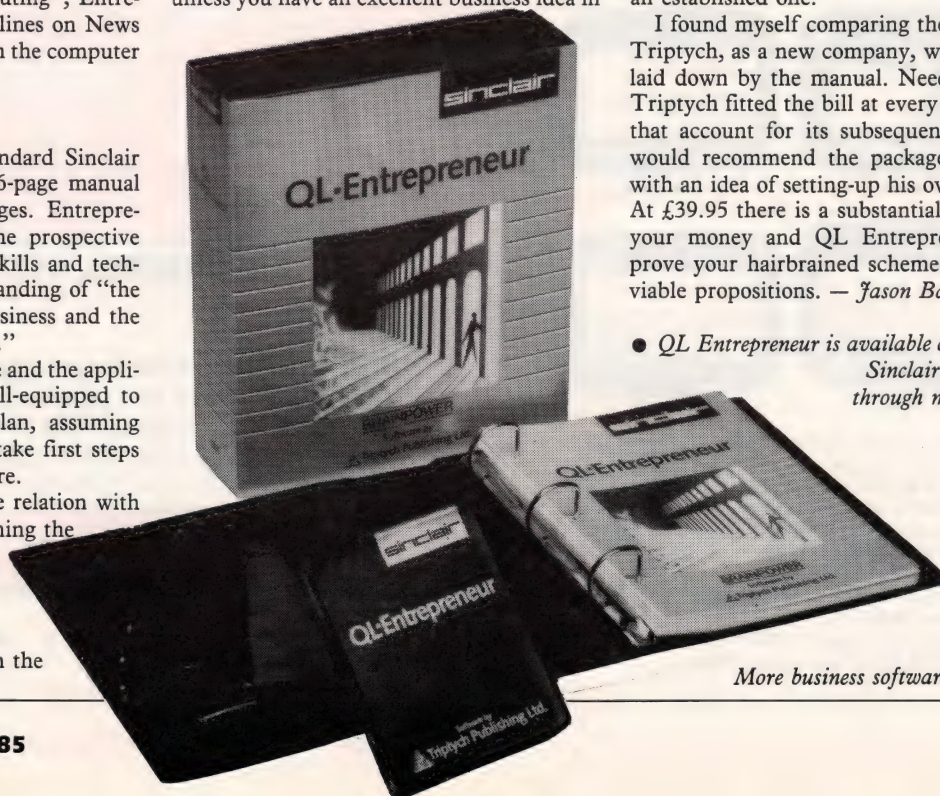
Flow forecasts and year-end balance sheets are calculated automatically — perfect for presentation to your financier — as are profit and loss accounts and a detailed analysis of the results.

The manual also provides helpful suggestions for making a good business idea a reality and the appendices cover all aspects of the first step.

QL Entrepreneur, in conjunction with other titles in the Brainpower series, represents a complete guide to preparing, assessing and later managing a new company. It is not comparable with the four business programs provided with the QL, since it is designed specifically to represent the case for a new business venture, not to support an established one.

I found myself comparing the position of Triptych, as a new company, with the rules laid down by the manual. Needless to say, Triptych fitted the bill at every stage; could that account for its subsequent success? I would recommend the package to anyone with an idea of setting-up his own business. At £39.95 there is a substantial amount for your money and *QL Entrepreneur* could prove your hairbrained schemes to be very viable propositions. — *Jason Ball*.

- *QL Entrepreneur* is available directly from Sinclair Research or through most Sinclair stockists.



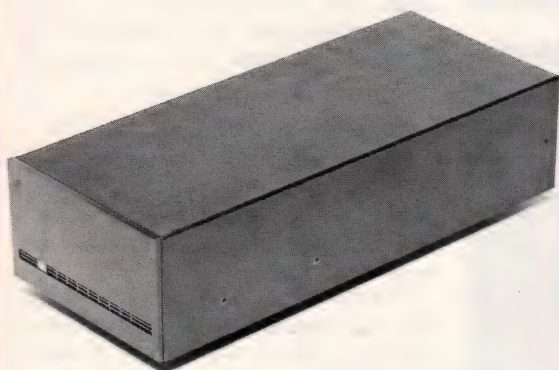
More business software on page 22.

MEDIC

- leaders in QL expansion

- introduce Winchester

The MEDIC Winchester hard disk

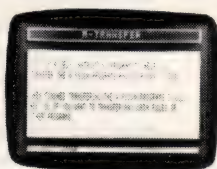


Free Business Software

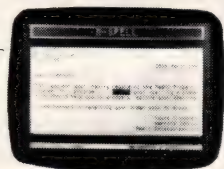
Nine performance-raising programs, free with every MEDIC disk drive system.
(Extra memory recommended.)



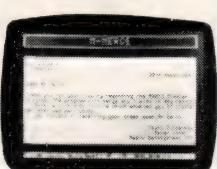
M-DESK



M-TRANSFER



M-SPELL



M-MERGE

M-DESK Macintosh-type single-key depression user interface, for instant program switching and utilities selection **M-BASE** turns Archive into a menu-driven database with single-key commands **M-ACCOUNTS** fully integrated sales, purchase, nominal ledgers, and stock control **M-KEY** single-key entry of user-defined text in any program **M-SPELL** spelling checker **M-MERGE** personalised mailshots **M-SQUEEZE** file compression **M-BOOT** sets up RAM disks in memory then automatically loads pre-defined files and programs **M-TRANSFER** microdrive - disk routine.

MEDIC - leaders in disk drives and expansion systems for the Sinclair QL - now introduce a Winchester hard disk which gives a full 5 MB of formatted text/data storage, enabling the QL to be used in major business applications.

At only £299.95, including interface, the new MEDIC Winchester is amazing value, turning the QL into a full-scale business machine. The MEDIC Winchester offers a very fast transfer rate (256 kilobytes/second) and stores valuable data more safely than either floppy disks or microdrives.

The new MEDIC Winchester ensures easy data location and access through its sub-directory capability (can be configured to emulate a series of floppy disks).

THE MEDIC EXPANSION SYSTEM

"Medic have set out to manufacture the definitive expansion system and have to a large extent succeeded."
(QL User, August 1985).

Fit a Medic expansion system - via the unique plug-in systemcartridge - to your Sinclair QL, and you immediately transform it into a fast, powerful business machine.

Extra memory, for speed and easier program handling, starts at £149.95. Complete systems consisting of 1MB disk drive (720KB formatted), disk interface, parallel port, integral power supply, from £199.95. By adding extra memory you achieve even higher performance utilising RAM-disk procedures available with MEDIC free business software.

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Includes MEDIC systemcartridge with 512K extra memory plus disk interface and parallel port, built-in 720K floppy disk drive plus separate 5MB Winchester hard disk including cables and power supply + full suite of MEDIC FREE BUSINESS SOFTWARE.

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Order form

To order, please tick the items you require and enter total order value - to include £10 p&p (£2.95 for orders under £125) in the box below. All prices shown include VAT.

All orders must be signed. Please allow 28 days for delivery.

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MEDIC systemcartridge with extra 512K memory inc. power supply

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Dust Cover plus 3 adjustable feet

£14.95 ☐

Joystick

£9.95 ☐

Disk pack Ten 3½in disks in rigid plastic storage box

£39.95 ☐

Modem*

Add to disk interface or complete system price (not sold separately since connects through systemcartridge)

£120.00 ☐

*not shipped until BT approved

Complete system MEDIC systemcartridge with built-in disk drive (1MB, 720K formatted), inc. disk interface, power supply + FREE SOFTWARE

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Complete system + Winchester MEDIC systemcartridge inc. 512K extra memory plus disk interface, parallel port with built-in 720K disk drive, plus 5MB Winchester hard disk inc. cables and power supply + FREE SOFTWARE

£449.95 ☐

Monitor

High-resolution 9-inch with green anti-glare screen

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Winchester hard disk 5MB formatted, inc. interface

£299.95 ☐

Professional QL keyboard Full travel keys, owner-installed, needs only a screwdriver

£29.95 ☐

Numeric keypad Needs interface, see below

£29.95 ☐

Mouse Includes M-Paint graphics program, needs interface, see below

£49.95 ☐

Interface For numeric keypad and mouse (only one needed to connect both items via ROM port)

£14.95 ☐

Printer Cable QL parallel printer cable

£14.95 ☐

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*you do not need to order items. But all name and address details must be completed (No signature necessary).

Please send me the items I have ticked on this order form and I agree to pay cash on delivery.* I am over 18.

*COD offer for UK addresses only. Overseas purchasers must send cash (sterling) with order.

Total order value (inc p&p)

Signature

NAME

ADDRESS

TELEPHONE (Area code) (No.)

All sections must be completed, PLEASE USE BLOCK CAPITALS.

Decision analysis is basis

THE SECOND business package in the Triptych Brainpower series is *QL Decision Maker*. By entering the circumstances of a problem, Decision Maker presents the risks, costs and benefits in a diagrammatic way, arriving at a rational conclusion. The problems will usually involve money and it is for purchase agreements that Decision Maker is most useful, although the program's basic tenets could be applied to any decision.

It is human nature constantly to evaluate products for sale — often unconsciously — and buy those we feel are worth more to us than their monetary value. Expensive goods such as cars, boats or even houses, however, offer several alternatives and price ranges, which we are not able to evaluate through instinct alone. Decision Maker is particularly worthwhile for assessing such purchases.

The package is based on the theory of decision analysis and decision trees and includes a complete learning course about those theories. Decision analysis cannot be applied to a problem unless it is broken-down into a finite number of elements — an initial decision with clear alternatives; limited outcomes from those alternatives; and decisions resulting from the outcome leading to more alternatives.

Choice guidance

Decision Maker is presented in a plastic case containing four Microdrive cartridges and an 86-page loose-leaf manual. As you work through the manual, each chapter is developed by the computer, showing diagrammatic representations of step-by-step examples and setting questions to check your understanding.

Until you understand those principles, it is surprisingly difficult to appreciate what the applications program does. The example used in the teaching program involves the purchase of a car.

The choices are an expensive deal with

guarantee, or a cheap car without one. By giving the costs of each, the probable cost of repairs and the re-sale value of each car, the computer presents the case so that all the alternatives can be seen. Entering the chances of each breaking-down allows the QL to determine the best deal, so you make the proper decision — i.e., get the new Mini Metro, not the old Jaguar, however much you like it.

Unfortunately, the costs and probabilities in a situation are not always so easy to assess, while the best option is obvious, once you know how to calculate it. Even the manual admits that, once understood, decision analysis principles can be applied without the applications program.

For many people, the value of the pack will be in learning to understand and apply decision analysis. In that respect the manual is excellent, making good use of the QL and covering all six steps of the theory, chapter by chapter.

The first of the steps is structure — e.g., the decisions which must be made, their order, and the probable events which occur

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run by British
Telecommunications
in accordance with the
conditions in the
instructions for use



TANDATA FOR THE

Q-CONNECT

Complete RS232 output for general communications from 75-9,600 baud with full two-way buffering and flow control. Plus all the software on a micro drive to support all 3 modules. The software includes Prestel Viewdata/Videotex AND VT100 emulation, as well as user-to-user communications with error-corrected file transfer (with encryption for security) and many other features including a telesoftware downloader.

Connects to the QL's SER 2 port allowing the micro to be used with virtually any asynchronous modem and for general data communications.

Q-MOD

Manual dial V23 modem operating at 1200/75 baud and 1200/1200 baud half duplex.

Q-CALL

Provides traditional pulse/loop disconnect auto-dial and auto-answer.

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BUSINESS SOFTWARE

between them. The structure is outlined on a decision tree using symbols to show choices, chance events and results.

Once a structure has been defined, you must evaluate the pay-offs of your decision, showing costs and values of all the events. The pay-off analysis is followed by an assessment of the probabilities and roll back, using the decision tree rules to calculate the solution.

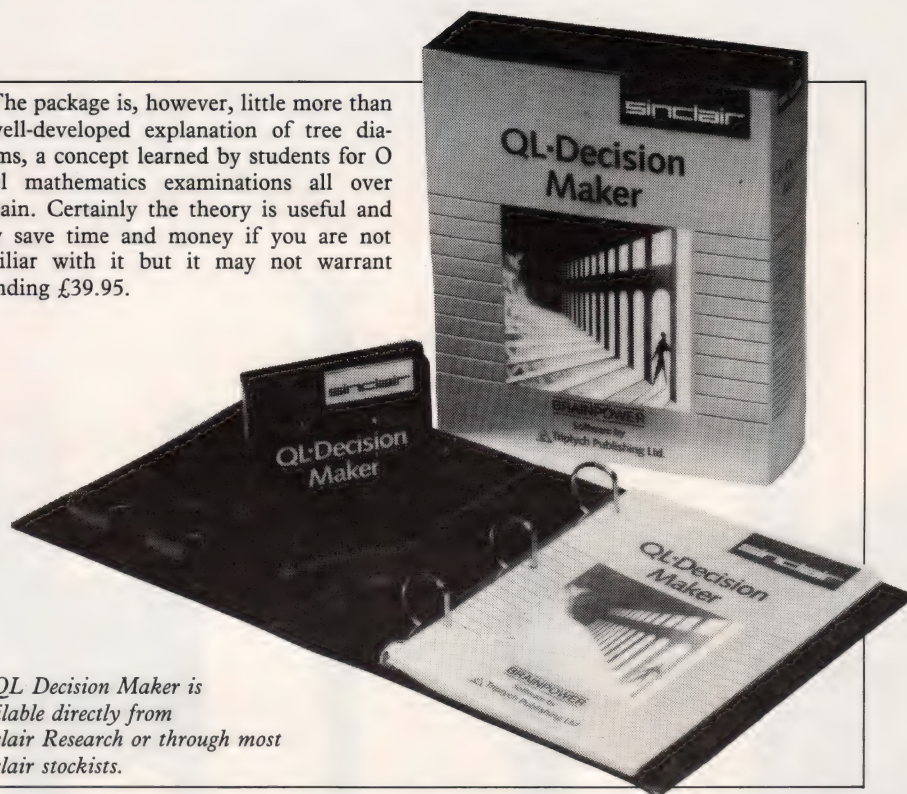
Risk calculation

Risk analysis is then employed to ensure that each of the calculated solutions is tolerated; i.e., you might have to walk home from a fancy dress ball if your reconditioned Jaguar breaks down. Then a final 'sensitivity analysis' shows how much your assumptions must be changed to alter the solution.

Decision Maker is a practical answer for anyone faced with an important decision, be it buying a car, expanding a business, looking for a new job or even buying a home. It provides an awareness of circumstances which might not be appreciated if you just thought things over yourself.

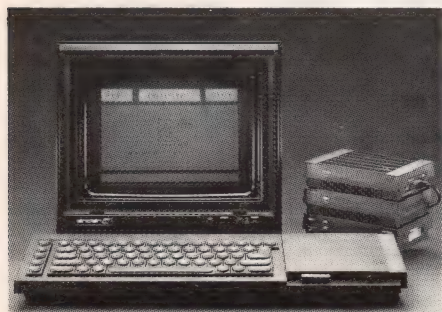
The package is, however, little more than a well-developed explanation of tree diagrams, a concept learned by students for O level mathematics examinations all over Britain. Certainly the theory is useful and may save time and money if you are not familiar with it but it may not warrant spending £39.95.

● *QL Decision Maker is available directly from Sinclair Research or through most Sinclair stockists.*



COMMUNICATIONS SINCLAIR QL

Thanks to Tandata you can now convert your QL into a powerful and comprehensive communicating terminal. You can contact distant databases such as British Telecom's Prestel system, private viewdata systems, traditional ASCII databases and electronic messaging/mail services such as Telecom Gold. You can even replace your existing



VT100 terminal and enjoy secure communications with other QLs.

The three smart modules have been designed to match the QL in style and for added convenience they stack together using vertical bus connectors without the need for interconnecting cables.

The modules are available separately, but by using all three as a complete matched

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QW11

Beyond Basic.



The first C compiler for the Sinclair QL.[®]

However good SuperBASIC[®] is as a language, professional programmers have long recognised that there is a better alternative.

It's called C. It's the world standard systems programming language. It's extremely fast and it's available now on the Sinclair QL.

GST's QC C compiler runs on a standard QL from microdrives. No extra RAM is necessary. It will also run with disk if required. QC comes complete with full QDOS[®] runtime libraries, assembler, linker, a comprehensive user manual and tutorial book. It costs £59.95.

Remember, GST are officially recognised by Sinclair as leading developers of software and hardware for the QL. QC is one such product.

Beyond BASIC and into the future.

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That
little bit
extra

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Telephone: Crafts Hill 0954-81991. Telex: 817057.

QC Data Sheet

The C language

The C programming language was developed in the mid '70s at Bell Laboratories by Kernighan and Ritchie and is now confirmed as the standard systems programming language for the majority of software houses, universities and computer manufacturers.

C combines all the advantages of program structure provided by a high-level language with the ability to manipulate the machine hardware directly by using data types that correspond to the memory architecture, making the use of assembler largely unnecessary.

The power and flexibility of C ensures its continuing growth in popularity. It is the essential skill for the professional programmer in the '80s.

The QC compiler

QC is the first C compiler available for the QL that runs under QDOS. QC provides both the professional programmer and the first-time user with a complete set of C development tools:

- **C compiler** to compile C source to 68000 assembler code
- **68000 assembler** to translate 68000 assembler code to relocatable binary
- **QDOS run-time libraries** providing access to QDOS functions from C
- **Linker** to link the library routines with the relocatable binary
- **Screen editor** for the creation and editing of C source code
- **Menu-driven 'shell'** to automate the compile/assemble/link process
- **Window manager** to change the size and position of program windows
- **Backup program** for automatic microdrive or floppy disk backups

The compiler, assembler and linker produce comprehensive listing output. This includes a formatted printout of the generated assembler code with the C statements inserted as comments, which is ideal for program debugging.

The QC compiler also allows the programmer to code assembler statements directly in the C source code by using the

#asm and **#endasm** directives. This enables the C programmer to use assembler for optimisation of critical areas of the program without recourse to separate assembler modules.

QC language features

QC is an extensive subset of the C language with extensions provided for assembler code inserts and QDOS library functions. The major differences between QC and the C language defined by Kernighan and Ritchie are:

Additional QC features

Comprehensive run-time libraries
Assembler code inserts
Listing control directives

Not implemented in QC

Structures (struct, typedef, etc.)
Floating point
Multi-dimensional arrays

The balance between the language subset and the new features of QC provides a powerful systems programming environment that can be used on a standard QL with no extra hardware.

QC libraries

QC is supplied with two sets of library subroutines. The first contains the standard C run-time routines which will be familiar to experienced C programmers. The second is a special QDOS library providing easy access to all of the QDOS system functions without the need to drop into assembler code. The complete list of library routines supplied is:

abort	curdown	fgets
abs	curleft	fill
adate	curright	flash
arc	cursen	fopen
at	cursor	fount
atoi	curup	fprintf
atoi	date	fputc
avail	delay	fputs
beep	delete	fread
block	dtoi	free
border	ellipse	freopen
calloc	exec	fscanf
ccargc	exit	fwrite
cfree	fclose	gcursor
circle	feof	getarg
clearerr	ferror	getc
cls	fflush	getchar
csize	fgetc	getpos

getwindow	lseek	strcat
ink	malloc	strchr
isalnum	nextline	strcmp
isalpha	otoi	strcpy
isascii	over	strip
isatty	pan	strlen
iscntrl	paper	strncat
iscons	point	strncmp
isdigit	poll	strncpy
isgraph	printf	strrchr
islower	putc	tab
isprint	putchar	toascii
ispunct	puts	tolower
isspace	qdosdate	toupper
isupper	random	trap1
isxdigit	read	trap2
itoa	readdir	trap3
itoab	recol	under
itod	reverse	ungetc
itoo	rewind	unlink
itou	rnd	utoi
itox	scale	warble
keyrow	scanf	window
left	scroll	write
lexcmp	sdate	xtoi
lexorder	selwindow	
line	sign	

Hardware required

The QC compiler, assembler and linker, together with the QC utility programs will operate on a standard QL from microdrive cartridges. QC will also operate with all QL peripherals (such as floppy disks) that use standard QDOS input/output functions and with add-on RAM packs.

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Trade enquiries contact Michael Hall.

Show attracts 100 more members

QUANTA had a stand at the PCW show, thanks to the Association of Computer Clubs, which arranged with the organisers for ACC-affiliated groups to have free stands. We managed to talk more than 100 QL users into joining Quanta, which was gratifying.

It was also satisfying to meet some of our members face to face. Although I have now been editing the newsletter for more than 18 months, I never cease to be amazed by the number and quality of the contributions I receive.

Usually, the editor of a publication like ours is scratching for anything to fill the pages — usually at least 36 of them — and finally, has to write half himself, but always I am in the position of having too much material rather than too little.

One of our German members has written a very useful pair of SuperBasic extensions which save and load programs in tokenised form, thus speeding the loading of large programs enormously. The extensions have been donated to our software library, together with the assembler source code.

Another member has developed software which allows file transfer between the ICL One-per-Desk and the QL. He works for ICL, which helped considerably when he needed to learn about the OPD Microdrive format, which is completely different from that of the QL.

OPD drives

John Fuller of PCML Ltd, which makes disc drive and memory expansion units for the QL, told me at the PCW show that the company is working on disc drives for the OPD as well. He expressed an interest in the file transfer software, as it would be very useful to users with his hardware.

Now that modems are available for the QL from Tandata and Modem House, several members are adding to British Telecom profit by getting on-line with their QLs. Therefore we have decided that when we have sufficient money we will set up a computerised smart modem which can handle both 300/300 and 1,200/75 baud standards automatically, depending on what is sent to it. A disc-based QL will also be required. The software will be written in C. I already have a volunteer to run it; he has just retired, which is probably a good thing, as running a bulletin board is time-consuming.

I have had several complaints recently about a rather irritating bug in Archive 2.0, which sometimes results in the first record in a file being deleted when another record is ALTERed. The ALTERed record is dupli-

cated. One member circumvents that by always having several copies of the first record at the beginning of his files. Psion tells me there is a patch available which eradicates the bug and promised to send me a copy for which I am still waiting.

A recent copy of *Elektor* had an interesting RAM expansion circuit for the QL. It is intended to interface to the QL via the

A group of C aficionados is coding functions for the Lattice/Metacomco QL package.

expansion connector but Quanta member Roy Barber mounted his inside the QL case, leaving the expansion connector free for his disc drive. He tells me it cost him about £30 for the 128K of additional RAM. One or two companies are advertising internal memory expansions for about £150, by swapping 256K RAMs for the 64K devices.

I have been investigating a DIY conversion which would be very much cheaper, as I have been quoted £2.85 each for 256K RAMs in small quantities. You need 16 chips, by the way, not two, as two members thought, as the devices are 64K/256K by one bit, not one byte. It is not only a question of swapping the chips, as the decoding also has to be changed. Even if I get it to work, I will be dubious about publishing the details, as it will be rather fiddly, and I do not want to be blamed if someone's machine does not work afterwards.

Brian Trode has found that in certain circumstances SuperBasic allows only a maximum of eight local variables in a procedure. Any more than eight and the program seems to become corrupted when the procedure is executed.

Someone from Motorola telephoned us recently. The company is thinking of using QLs on its 68000 assembly language training courses and wanted our views on the different assemblers and monitor/debuggers available. In return, I asked for a copy of the MC68020 — the Motorola new 32-bit superchip — technical manual. In theory, it should be possible to replace the MC68008 in the QL by the MC68020, since the latter can be configured to use an 8-bit data bus.

A better scheme would be to use the QL to handle the I/O for an MC68020 system. Since the 68020 costs about £500 it is academic at the present time. It might be an interesting project in a year or so when the 68020 has fallen in price.

The otherwise excellent Lattice/Metacomco QL C package does not have much support for the special features of the QL —

you cannot even clear the screen. I am therefore organising the development of a Qdos library for the package which will provide similar facilities to those available in SuperBasic.

A number of C aficionados in the group have agreed to code some of the required functions. By splitting the job in that way we should get a comprehensive QL library in a few weeks, provided everybody does their portion. Most of the functions are straightforward and can be written in C but the graphics routines will be tricky and will probably involve some assembly language programming.

Charles Dillon, the group Archive expert, has developed a program which recovers data from a corrupted Archive file. Several members have used the program successfully. Dillon has also written a very useful booklet which has been published by the group on the use of Archive.

Screen compression

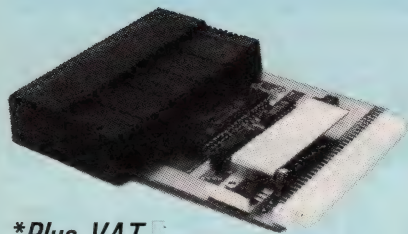
A recent addition to the group library is some software written by Ron Dwight which saves and loads screen images in compressed form. The degree of compression which can be achieved depends on the complexity of the screen image and Dwight estimates that the average screen could be compressed into 25 percent to 50 percent of the 32768 bytes which normally would be required. An added benefit is the reduction in loading time.

Non-members might be interested in how the group software library works. All programs are written by members, or have been typed-in from magazine listings with the permission of the copyright holder. Large programs, which take a good deal of time and effort, are available for a nominal £1, which goes to the author as a royalty. All other programs are free.

The member sends cartridges or discs to the nearest sub-librarian, with return postage and packing, and the payment for any of the programs for which a charge is made, and the cartridges or discs are returned in a few days. All programs submitted to the library are checked and returned with suggestions for improvements, if necessary.

When a suitable program is received, it is added to the latest cartridge, which is distributed to all the sub-librarians when it is full. The list of programs in the library is available on two cartridges, in the form of Archive files, for £1.50 each. We charge for the list, to pay for the cartridges held by librarians and other expenses involved in the library operation. We now have more than 350 programs in the library — *Leon Heller.*

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(Can later be upgraded to 512K)
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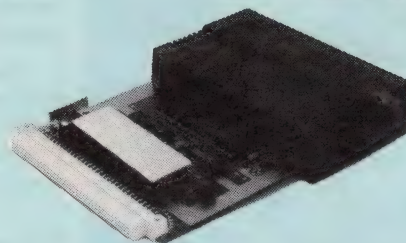
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512K



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Free! RAM DISC SOFTWARE
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Q+2

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1 year warranty
Includes power supply
Allows memory & any peripheral to run together

512K INTERNAL UPGRADE... £99.00

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☐ × RAM DISC @ £6.00 = £

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COMPETITION

R E S U L T S

Italian succeeds

THE WINNER of the disc drive competition in the first issue of *QL World* is **Alberto Ratini**, a reader from Terni, Italy. His file-transfer program, **Filer**, impressed the judges with its pull-down menus, clean graphic design and extensive range of options.

Ratini will receive a Silicon Express disc system — our thanks to Silicon Express for donating the prize — on which he can develop even bigger and better programs for his QL.

The winning program will be offered soon to *QL World* readers once documentation and packaging are complete.

We thank everyone who entered the competition and express regret we could not print more winners. *QL World* readers from throughout the U.K. and Europe sent replies in much greater volume than we expected from such a difficult competition. For that reason, we would like to recognise the efforts of some particularly noteworthy runners-up and encourage them to develop more software. The honourably-mentioned are:

- A W H Perkins of Oxley Gardens Estate, near Loughborough, who developed an icon-driven system called *QL Pigeon* to facilitate file transfers and other utility-orientated tasks.
- Andrew Filby of Doncaster, author of an extensive file utility program which included facilities for file encryption, directory creation and management of sub-directories.
- Alexander Gassmann of Vaucresson, France, the sole French representative among the finalists, whose software was tightly-written and attractively-presented.

The list could be much longer, as each program offered something special or individual.

Microdrive exchange plan

AS they say in the movies, there is some good news and some bad news. The bad news is that the improved version of Rob Sherratt's FCOPY fast-copy routine — the first part of which was featured in Issue 2 — is now so long and packed with so many features that there is insufficient space to publish the whole listing. The good news, however, is that we are negotiating with the author towards an agreement which will allow us to offer the program on a Microdrive exchange basis.

The agreement and complete documentation of the program will be completed by the beginning of December, at which time we invite you to send us a blank Microdrive cartridge, a self-addressed stamped envelope and a cheque or money order made out to QL World Ltd for £2.50, in return for which we will copy the program on to your cartridge and return it with the documentation to use it.

Details of the plan will be published in the December issue, together with an order form for the software. Please do not send cheques or money before then, as we will be unable to make deliveries until December.

We hope the offer will be the beginning of a comprehensive software exchange programme. We have far more software contributed, much of it excellent, from readers than we can possibly publish. A software exchange system would provide the perfect vehicle for passing the software to you, as well as making the odd extra pence for the hard-working authors of the software. If you would like to see more software on a Microdrive exchange basis, write and tell us.

Bookworld reviewer Jason Ball offers guidance on some of the latest offerings to interest QL users, whether they be advanced or beginners.

DESPITE its title, *Advanced Programming on the Sinclair QL*, by Martin Gandoff, Hutchinson and Co, £6.95, is not a book solely about machine code programming but rather a bridge between achieving a sound knowledge of SuperBasic and experimenting with the initial stages of machine code.

The book has an introduction by Nigel Searle, former managing director of Sinclair Research, whose comments appear in all the books in this series. It is edited by Robin Bradbeer, a contributor to the ZX-81 manual.

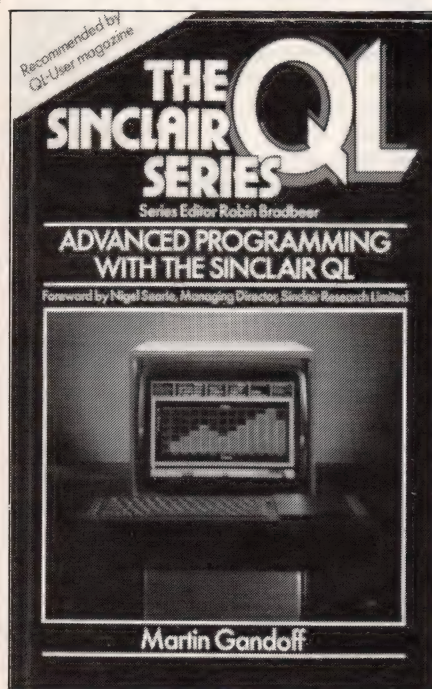
The following introduction and the preface are modest and very apologetic about the errors which inevitably occur in the book: "The specifications of the QL had not

and programming, demonstrating that many users could develop their systems, given the help needed to do so. The second chapter is rather heavy, not because a high level of programming knowledge is assumed, but because of its theoretical approach to business applications.

The book then describes the main elements of SuperBasic, giving examples and demonstrating that common sense is an important part in the development of software and that you do not need necessarily to be a boffin to program with competence. The last chapter gives some excellent listings of the types of applications suggested in the book.

Throughout, screen shots are used to show results of programs and flowcharts are used to demonstrate various business systems and to remind you of school mathematics.

I would not recommend the book to the games programmer, since it is directed towards more practical applications, but for anyone wishing to further their understanding and ability to program business applications it is an excellent buy.



been settled by June of last year, many bugs were present, and the manual had only just been published", says the book.

Thankfully, the book does not discuss graphics, Qdos and assembly language to the exclusion of all else. It provides a framework of practical programming for commercial data processing, giving advice and helpful tips on SuperBasic rather than acting as a manual or textbook.

The author suggests that the book is designed to help business people develop their own software and in doing so gain a sound knowledge of Basic. To use the book properly, however, an understanding of data processing — namely orders, invoices, pay-slips — would be helpful.

The first two chapters introduce the QL

Explanations thorough

MANY PEOPLE buy the QL as a business machine with the intention of exploiting the excellent programs provided with it — the Psion QL Quill, Abacus, Archive and Easel. Unfortunately, documentation for the Psion software is not written in a tutorial fashion and its approach may appear somewhat technical and difficult to understand.

With *Professional and Business Uses of the QL*, Colin Lewis has provided a solution to the problem by providing a basic tutorial for the four applications which offers the necessary knowledge to use the programs with greater confidence.

Several books have appeared for these pieces of software since the QL reached the market but they have tended to delve deeply into the workings and applications of each program and many owners have neither the time nor inclination to wade through them.

Professional and Business Uses of the QL covers not one but all four packages. It begins with setting-up the QL hardware and then describes Qdos, the QL operating system, and each of the four programs in turn.

The explanations are thorough and well-written and the book would make a welcome addition to any serious QL user's library.

Guide for young users

DESIGNED for first-time buyers who wish to learn SuperBasic programming, *Quantum Theory*, Century Communications, £5.95, written by Jeremy San, Fouad Katan and Simon Rockman, is a general guide to the QL. They have drawn on their experience with the QL to produce a guide which takes you from unpacking it through to fairly advanced programming.

The work is designed for the young user who wishes to learn to program. Business users will probably find the book unsuitable; it covers topics such as graphics and sound but does not refer to the business programs provided with the QL.

The book is well-written and takes a humorous approach — I found myself reading the first chapter despite already knowing about everything it explained, since the prose flowed easily and retained my attention.

The book covers the complete range of commands available in SuperBasic systematically and builds a sound working knowledge of programming but will not provide you with the background to write professional machine code programs.

A comprehensive description of each SuperBasic command and how to use it is given in the chapters covering simple programming, after which the book proceeds to sound and advanced graphics.

A series of excellent appendices is provided, including descriptions of the QL expansion ports and a concise list of SuperBasic commands and their functions.

The book takes a clear and lucid approach to the teaching of programming languages. For example, the authors enlisted a musician to provide the best possible approach to music on the QL.

Several example programs are included to assist in the understanding of program construction. They range from simple one- and two-line examples in the early chapters to extensive games/graphics programs towards the end of the book.

I was disappointed to find a certain number of errors. Program listings sometimes needed simple modifications, such as the insertion of spaces, to make them work, and the screen shots did not always show the correct results.

Generally the book provides a good launching-point into the world of QL programming — and provides entertaining reading while doing so.



Try Crazy Painter —

A RECENT addition to the competitive QL software market is Microdeal, a company already well-established in production of software for popular home computers. It now seems to be testing the QL market without modifying its approach to home computer games. Instead of devising special Microdrive containers or using modified video cassette containers, ordinary music cassette boxes have been modified to accommodate Microdrive cartridges, with instructions printed on the cassette inlay.

Crazy Painter certainly lives up to its name. You use a wide paintbrush to try to paint the whole screen in one colour, while

all kinds of dogs, people and other gremlins do their best efforts to frustrate you.

There are aliens, dogs, bubbles, snakes and even Mr T, all leaving their marks as they cross the screen. Each of the characters has a different effect on your paint job and your brush but you soon learn which to avoid and which can be painted over—the dog can be painted over and the alien is worth avoiding.

Five paint pots and brushes are provided; a paint pot will almost cover a screen before it is emptied, if no characters ruin the job. Unfortunately a time limit is imposed, not a limit on the amount of paint used; thus fast movement of the brush is required instead of

MICRODEAL has lived up to the axiom third time lucky with its third game for the QL, *Lands of Havoc*. In terms of quality, presentation and playability, it far surpasses its previous efforts. That was clearly demonstrated at the ZX Microfair, when a complete batch of the game sold by lunch-time.

Lands of Havoc is in a smart box containing one Microdrive cartridge, a set of nine large cards, each printed with a full colour map of one of nine screens, and a small book of instructions.

The only controls are the cursor keys and space bar, or joystick, and there are no other confusing commands to remember. The pages tell of the perfect Land of Haven, cared for and tended to by the High Vanish, a magician as powerful as Merlin. Then the Dark Lords arrived and, with treachery and deceit, overthrew the High Vanish and destroyed him. Haven then became the Land of Despair, in which the Dark Lords worked their evil.

Vanish had prepared for such an event and the presence of his magic was still felt in the lands. During that period of transition, the land became known as the Lands of Havoc and it was then that a stranger arrived—no points for guessing his significance.

Each game requests that the nine maps be placed in a specified order to form the kingdom in which you arrive. At first the game is restricted to the area within those maps but as you progress you must find your way through some 2,000 screens deep into your adventure.

You must move through the screens, shooting various assailants which appear at random and find the Book of Change, hidden in the alchemist's storeroom in the village. When you reach that you are instructed as to where you must travel next and what you must find. Whenever an attacker reaches you, your energy level lessens.

The graphics are smooth and crisp, if a little repetitive. You can fire left or right, depending which way your character faces, but unfortunately you cannot kill characters above or below you. Your energy levels deplete so rapidly that sometimes it can be impossible to get through to the later screens of the game, depending on your skill level.

Lands of Havoc is not really an arcade game or a true adventure, like the Talent text-based ZKUL and WEST, but one of a new breed of hybrid adventures and not a bad one at that. At £19.95 *Lands Of Havoc* is not the least expensive game on the market but it is one of the best.

Playability	* * * *
Graphics	* * * *
Addictiveness	* * * *
Documentation	* * * *
Overall value	* * * * *



CUTHBERT in Space is the fourth game released for the QL by Microdeal and the company's third QL offering from programmer Steve Bak. His previous program, *Lands of Havoc*, was something special but he seems to have fallen short of expectations with Cuthbert. Cuthbert is a long-standing character of some repute in the Microdeal games community and was the star of a series of games first offered for the Dragon 32 micro.

Cuthbert's QL adventures in space seem similar in many ways, borrowing from the plot of *Eva*, another jetpacks-and-spaceships game reviewed recently. The idea is to retrieve fuel pods and goods, one by one, from around the screen.

You start by moving Cuthbert's spaceship slowly among various pods, collecting goodies as you go, with the usual never-ending sequence of baddies menacing you as you acquire more and more of their treasure—in this case fuel.

As you also might expect, the game becomes more and more difficult with each passing level of baddie—known in this case as Moronians—and is probably worth a try if you are in the mood for some inter-galactic treasure-hunting.

At £12.99, it certainly is not one of the worst games I have seen for the QL but it left me feeling a little as if I was playing one of those games on the Dragon two years ago. A little more attention paid to using the undisputed processing power of the QL, which Bak demonstrated he could do in *Lands of Havoc*, would have made it a better game. Microdeal can be reached at 41 Truro Road, St Austell, Cornwall PL25 5JE. — Jason Ball.

Playability	* * *
Graphics	* * * *
Addictiveness	* * *
Documentation	* * *

it lives up to its name

precise use of the paint. The dog leaves only his footprints but when you are waiting to paint over Mr T's footprints, a dog will appear in one corner, an alien in the other, and your paint runs out. It is then that you grit your teeth and become frustrated—or feeling challenged, depending on how you look at life.

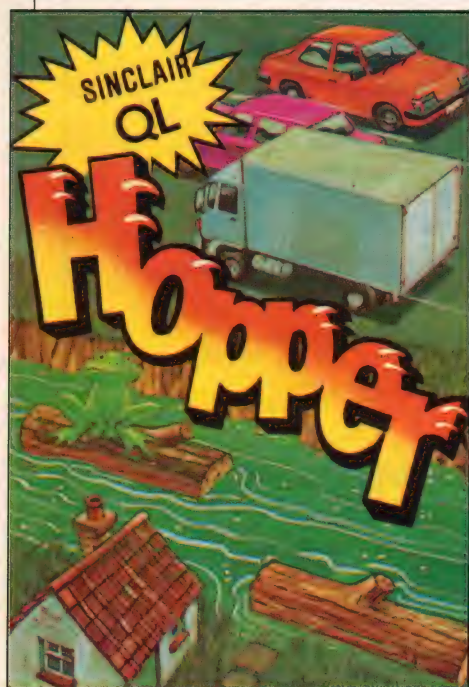
The brush is moved using the cursor keys or a joystick and when the screen is painted completely the space bar takes you to the next screen.

After four levels there is what the authors call a challenge stage. Paint dribbles down the screen while you scrape it back up to the top frantically with something resembling a

large T. Unfortunately movement from side to side is much too fast, so a line of paint tends to reach the bottom before you can position the scraper beneath it.

Full marks for effort and improvisation but Microdeal has not been able to exploit the QL capabilities fully. At £12.95, the game certainly is not the cheapest on the market and really is not worth the price.

Playability	* * *
Graphics	* * *
Addictiveness	* * *
Documentation	* * *
Overall value	* * *



HOPPER is the first version of the Frogger arcade game to appear for the QL and is produced by Microdeal. It is also the first game of which I have heard of to be based on an old joke—why did the chicken cross the road? You might think it odd that as a small green frog you would want to hop across a busy motorway and a river filled with crocodiles and other nasties but that is the essence of this classic game.

The company is new to the QL software market but has long offered games for the BBC micro, Dragon and other home machines. The *Hopper* Microdrive cartridge is in a tape cassette box with brief but adequate instructions on the inlay card.

The first thing you notice about *Hopper* is how absurd the introductory picture is; it

encourages you to press any key while the program is obviously loading, so you can hit the keyboard as many times as you like and it will not load faster.

Once loaded, the program starts automatically—there is only one level of play—and you must direct your frog across the six lanes of a motorway, a traffic island and a fast-flowing river. The cursor keys, or a joystick, are used to move the frog and the game can be interrupted at any time.

It really is a no-frills package, despite its £14.95 price. When your three frogs have been squashed or drowned you are returned to the introductory screen to start again. Only the high score is recorded.

The graphics are mediocre; when your frog lands on a bunch of lilies or a log, the colours conflict and the shape of the frog disappears. That can make it difficult to figure which way it is pointing and whether a lily has turned white and is about to sink.

Despite those criticisms, the graphics for the vehicles are reasonably good and the game is fun to play, if a little difficult at first. I found the easiest way was to pause the game, plan a move, and make it in a split second before pressing pause again.

The sound is limited to a beep each time the frog moves, although the frog movement is sometimes unresponsive and the graphics tend to flicker.

Hopper has great potential and is addictive to play. Only the presentation and quality of the game diminish its features. The game is not good value for money but might prove entertaining if you are a fan of Frogger. — *Jason Ball*.

Playability	* * *
Graphics	* * *
Addictiveness	* * *
Documentation	* * *
Overall value	* * * *

QL BOUNDER is a new release from Sinclair Research, following on the heels of the earlier arcade-adventure game, *QL Caverns*. As a Canadian, my heart warmed at the sight of Quentin Jump, the game's character which unintentionally bears more than a passing resemblance to a member of the Royal Canadian Mounted Police, which you have to manoeuvre through the various screens while collecting bags of money. That may not be commendable behaviour for a Mountie but in a game which also includes ambulatory fish and giant rotating eyeballs, I imagine anything goes.

You begin in a seemingly innocuous chamber with your number of lives and the objects possessed displayed at the bottom of the screen. The next screen reveals some kind of mobile radar device on caterpillar wheels lying in wait and ever-so-ready to consume one of your 11 lives.

Like so many similar games, *QL Bouncer* is glutted with strange creatures bent on destroying you, including ducks — some low-flying, some turbo-charged — huge yellow waving hands, insatiable lawn mowers, mortorised brooms and self-propelling Dr Marten's boots.

Luckily, most creatures can be leapt over if your timing is good. To move from screen to screen, you jump up or down on ledges, ladders and platforms in your continuous quest for bags of gold. Quentin is able to walk and leap but experienced *QL Caverns* players should note that he cannot crawl. Once you have collected all the bags of money you proceed to the goal and deposit them to win.

The on-screen information available is limited to one small paragraph of instructions and another three poorly-written lines — I assume this is because I looked at a beta-test copy of the game — describing the controls — keyboard or joystick. A comprehensive demonstration program which runs through the various game screens and acquaints you with the chicanery of the game allows you to do some movement pre-planning.

QL Bouncer is based on the same kind of premise as *QL Caverns* but is much more difficult to play. It also bears a close resemblance to the *Manic Miner* classic first developed for the Spectrum and Commodore 64. The game is available through Sinclair Research or any Sinclair stockist and costs £14.95. — *Yvette Stachowiak*.

Playability	* * * * *
Graphics	* * * * *
Addictiveness	* * * *
Documentation	* * * *
Overall value	* * * *

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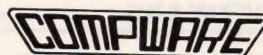
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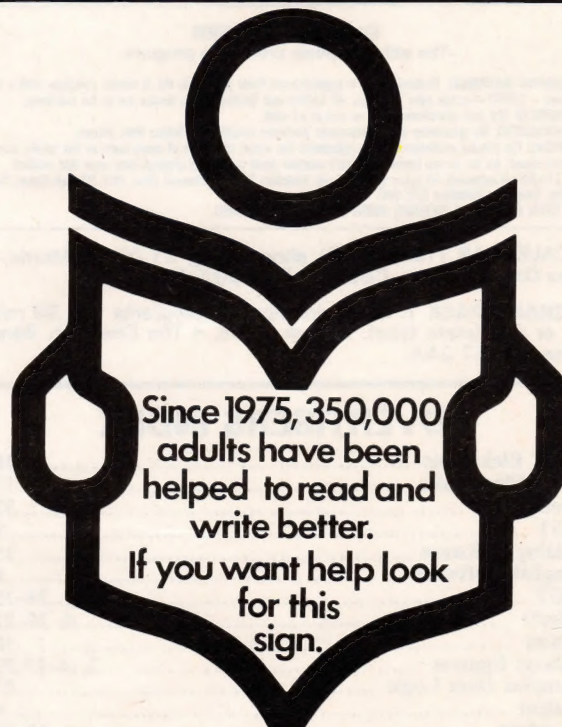
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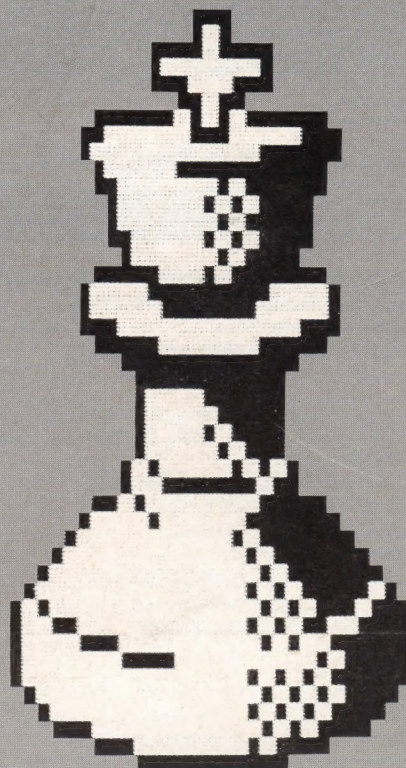
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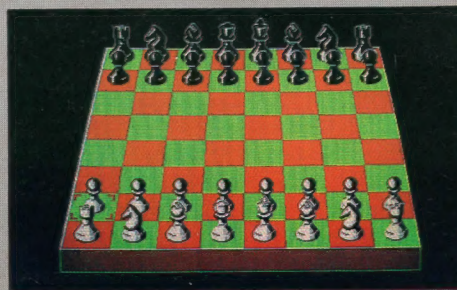
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